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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/595,804	06/16/2000	Eric C. Hannah	INTL-0372-US (P8591)	3494

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EXAMINER	
ARANI, TAGHI T	

ART UNIT	PAPER NUMBER
2131	9

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/595,804	Applicant(s) HANNAH ET AL.	
	Examiner Taghi T. Arani	Art Unit 2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15 and 17-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 17-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1, 9, 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by over U.S. Patent 4,964,162 to McAdam et al.

Referring to claim 1 McAdam et al. teach a method of broadcasting television programming including:

• generating an analog video signal [column 7, lines19□21, see also col. 7, lines 41-59];

• digitally encrypting an audio signal to provide a digitally encrypted audio signal [figure 8, A/D CONVERTER 160,ENCRYPTOR 162, see also col. 4, lines 19-39];

• modulating a carrier with said digitally encrypted audio signal and said analog video signal [column 15, lines 51-54] ; and

• broadcasting said audio and video signals, wherein said digitally encrypted audio signal is broadcast using a plurality of overlapping subcarriers [col. 4, lines 30-39, col. 12, lines 51-60, col. 15, lines 37-57].

Referring to claim 9, McAdam et al. teach the method of claim 1 wherein modulating a carrier includes using a conventional FM subcarrier and modulating said carrier with said audio signal [figure 11 and column 15, lines 32□36].

Referring to claim 11, McAdam et al. teach the method of claim 1 wherein generating an analog video signal includes generating an analog video signal with a graphical overlay pattern [col. 7, line 14 through col. 8 line 11, see also figure 1, VIDEO ENCODER 22].

Referring to claim 12, McAdam et al teach a television transmitter comprising:

• a graphics pattern generator that provides a graphics pattern for an analog video signal to form an obscured video signal [col. 7, line 14 through col. 8 line 11, see also figure 1, VIDEO ENCODER 22];

• an analog□to□digital converter coupled to receive an analog audio signal [figure 8, AID CONVERTER 160];

• a digital encryption stage coupled to said analog-to-digital converter to generate a digital audio signal [figure 8, ENCRYPTOR 162]; and

• a modulator coupled to said stage to generate a modulated audio signal [figure 8, SQPR MODULATOR 170].

• a broadcaster to transmit the obscured signal and the modulated audio signal [column 15, lines 37-57]

Claims 2-8, 10, 13-15, 17-26 are rejected under 35 U.S.C. 103(x) as being unpatentable over U.S. Patent No. 4,964,162 to McAdarn et al. and U.S. Patent No. 5,416,801 to Chouly et al further in view of Williams, U.S. patent 5, 371, 548, issued Dec. 1994.

Referring to claims 18, McAdam, et al. teach a television receiver comprising:

• a video detector to separate a received television signal into audio and video components [col. 16, line 5 through col.17, line 25, see also figure 12, AUDIO/VIDEO SEPARATOR];

• a device coupled to said video detector to remove a graphics overlay from an analog video signal [figure 12, VIDEO DECODER 222];

• an digital-to-analog converter coupled to said audio signal [digitizes(column 19, line 21)];

• a decryption stage coupled to said converter [figure 15, DECRYPTOR 310]; and

• a demodulator coupled to said stage [figure 15, SQPR DEMODULATOR 300]. McAdam et al. do not teach a demodulator to demodulate a carrier using a cyclic prefix as a guard interval.

However, Chouly et al. and Williams disclose a demodulator to demodulate a carrier using a cyclic prefix as a guard interval [col. 11, lines 15□16 of Chouly et al. and col. 8, lines 40-60, col. 11 lines 30-32 of Williams] wherein, said guard interval comprises a portion of a received symbol [col. 9, lines 31 through col. 10, line 67 of Chouly et al. and col. 12, lines 25-26 of Williams].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Chouly et al.'s teaching of providing said guard interval as a cyclic prefix to the system/method of McAdam et al., such that the multiplexer of McAdam et al. utilizes a cyclic guard interval. One would have been motivated to modify

McAdam et al.'s system/method as such in order to provide for absorption of echoes due to multi-path channels.

Referring to claims 2, 13, and 19, McAdam et al. teach all limitations of claims 2, 13, and 19 except for the method/apparatus of claim 1, 12, and 18 respectively, wherein modulating/demodulating a carrier with said digitally encrypted audio signal includes using orthogonal frequency division multiplexing to form symbols.

However, Chouly et al. do disclose the method/apparatus of claim 1 and 12 respectively, wherein modulating a carrier with said digitally encrypted audio signal includes using orthogonal frequency division multiplexing to form symbols [column 3, lines 46□47].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Chouly et al.'s teaching of using orthogonal frequency division multiplexing to the system/method of McAdam et al., such that the multiplexer of McAdam et al. utilizes orthogonal frequency division multiplexing. One would have been motivated to modify McAdam et al.'s system/method as such in order to provide for a high level of protection because of the complexity of the orthogonal frequency division multiplex transmission technique.

Referring to claims 3, 14, and 20, McAdam et al. as modified teach all limitations of claims 3, 14, and 20 except for the method/apparatus of claim 2, 13, and 18 respectively, including using an inverse Fourier transform to convert a frequency domain signal back to the time domain and a Fourier transform unit coupled to said demodulator. However, Chouly et al. do disclose the method/apparatus of claim 2 and 13 respectively, including using an inverse Fourier transform to convert a frequency domain signal back

to the time domain and a Fourier transform unit coupled to said demodulator [column 4, lines 52 - 541.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Chouly et al.'s teaching of an inverse Fourier transform and a Fourier transform to the system/method of McAdam et al., such that McAdam et al.'s system would be include an inverse Fourier transformer, coupled to the modulator and the digital to analog converter on the transmitter side and a Fourier transform coupled to the demodulator on the receiver side. One would have been motivated to modify McAdam et al.'s system/method as such in order to generate the orthogonal frequency division□multiplexing signal of the frame.

Referring to claim 21, McAdam et al. teach the receiver of claim 20 including an analog-to-digital converter coupled to said Fourier transform unit [figure 15, DIA 314, 316].

Referring to claim 4, McAdam et al. as modified teach all limitations of claim 4 except for the method of claim 3 including providing a guard interval with an orthogonal frequency division multiplexing symbol.

However, Chouley et al. disclose the method of claim 3 including providing a guard interval with an orthogonal frequency division multiplexing symbol [column 9, line 61 and 65].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Chouly et al.'s teaching of using a guard interval with an orthogonal frequency division multiplexing symbol to the system/method of McAdam et al., such that the multiplexer of McAdam et al. utilizes orthogonal frequency division

multiplexing with a guard interval. One would have been motivated to modify McAdam et al.'s system/method as such in order to absorb the echoes produced by multi-path channels.

Referring to claims 5 and 24, McAdam et al. as modified teach all limitations of claims 5 and 24 except for the method of claims 4 and 12 including providing said guard interval as a cyclic prefix and wherein the modulator is adapted to insert a cyclic prefix onto symbols of said modulated audio signal.

However, Chouley et al.-Williams disclose the method/apparatus of claims 4 and 12 respectively including providing said guard interval as a cyclic prefix onto symbols of said modulated audio signal [col. 11, lines 15-16 to Chouly and col. 3, lines 32-35, fig. 7 of Williams].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Chouly et al.'s teaching of providing said guard interval as a cyclic prefix to the system/method of McAdam et al., such that the multiplexer of McAdam et al. utilizes a cyclic guard interval. One would have been motivated to modify McAdam et al.'s system/method as such in order to provide for absorption of echoes due to multi-path channels.

Referring to claim 6, McAdam et al. as modified teach all limitations of claim 6 except for the method of claim 4 including setting the guard interval to a time equal to the worst case multi-path delay.

However, Chouley et al. disclose the method of claim 4 including setting the guard interval to a time equal to the worst case multi-path delay [column 10, lines 21 - 22].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Chouly et al.'s teaching to the system/method of McAdam et al., such that the system include an guard interval set to a time equal to the worst□case multi-path delay. One would have been motivated to modify McAdam et al.'s system/method as such in order to calculate/allow for the worst case scenario.

Referring to claim 7, McAdam et al. as modified teach all limitations of claim 7 except the method of claim 6 including setting the multi-path delay time about 250 microseconds.

Chouly et al. disclose setting the multi-path delay time to 32 microseconds [column 10, line 19].

Chouly et al. disclose the claimed invention except for setting the multi-path time to about 250 microseconds. It would have been obvious to one having ordinary skill in the art at the time the invention was made to set the multi□path delay time of Chouly et al. to 250 microseconds, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Allen, 105 USPQ 233.

Referring to claim 8, McAdam et al. as modified teach all limitations of claim 8 except the method of claim 7 including setting the guard interval to less than about one quarter of the symbol duration and setting the symbol time to about one millisecond.

Chouly et al. disclose setting the guard interval to less than about one quarter of the symbol duration [column 10, lines 23-24] and setting the symbol time to 128 microseconds [column 10, line 19]. Chouly et al. disclose the claimed invention except for setting the symbol time to about one millisecond.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to set the symbol time of Chouly et al. to one millisecond, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Allen, 105 USPQ 233.

Referring to claim 10, McAdam et al. teach all limitations of claim 10 except the method of claim 7 including synthesizing a carrier to form a frequency modulated subcarrier.

However, Chouly et al.-Williams disclose the method of claim 7 including synthesizing a carrier to form a frequency modulated subcarrier [column 10, lines 9-12 of Chouly et al and col. 2, lines 44-65 of Williams].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Chouly et al.'s (Williams') teaching to the system/method of McAdam et al., such that the McAdam et al.'s system would include a modulator and a Fourier transformer. One would have been motivated to modify McAdam et al.'s system/method as such in order to provide a secure output for transmission.

Referring to claim 15, McAdam et al. as modified teach the transmitter of claim 14 including a digital-to-analog converter coupled to said inverse Fourier Transform unit [figure 9, D/A CONVERTER 212].

Referring to claim 17, McAdam et al. as modified teach the transmitter of claim 13 including a modulator to modulate a carrier with said obscured video signal [column 15, lines 51-54, fig. 1, VIDEO ENCODER 22].

As per claims 22-23, 25-26, Chouly et al's (Williams') cyclic prefix (i.e. guard

interval) inherently comprises a portion of a transmitted/received symbol (i.e. an OFDM symbol), and that said portion inherently comprises a tail of said transmitted symbol [see for example, col. 8, lines 40-60. and fig. 7 of Williams l, see also , col. 9 lines 30 through col. 11, line 20 col. 11, lines 14-19 of Chouly et al].

Response to Amendment

Applicant's arguments filed on 5/7/204 regarding the rejection of the claims1-15, 16-21 under 35 U.S.C. 102() and 103 () have been fully considered but they are not persuasive. As per applicant arguments relating to rejection of claims 1 and 2-11, the applicant argues that neither McAdam nor Chouly teach or suggest broadcasting audio and video signals in which a digitally encrypted audio signal is broadcast using a plurality of overlapping subcarries.

The Examiner disagrees. McAdam et al. teach broadcasting said audio and video signals, wherein said digitally encrypted audio signal is broadcast using a plurality of overlapping subcarriers ([col. 4, lines 30-39, col. 12, lines 51-60, col. 15, lines 37-57]. McAdam et al. teach that for satellite-based transmission systems, analog stereo audio signals are frequently transmitted over two separate channels at subcarrier frequencies of 5.8 and 7.6 MHz above the video carrier frequency and that the two channels are necessary because the conventional NTSC audio channel at 4.5 MHz interferes with the video signal and, therefore, is generally not transmitted. However, the two satellite channels are typically analog channels and cannot accommodate the bandwidth required for transmission of a digitally-encrypted stereo audio signal, unless the digitized signal is either compressed or the sampling rate of the stereo audio signal is reduced below the Nyquist sampling rate.

Applicant argues that neither McAdam nor Chouly teach or suggest a transmitter that includes a graphics pattern generator that provides a graphics pattern to overlay on an analog video signal to form an obscured video signal.

The Examiner responds that McAdam's encoder including line spin scrambler (to obscure analog video signal) encompasses the claimed feature graphics pattern generator t to form an obscured (i.e. scrambled) video signal.

Conclusion

Any inquiry concerning this communication or earlier communications from examiner should be directed to Taghi Arani, whose telephone number is (703) 305-4274. The examiner can normally be reached Monday through Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh, can be reached at (703) 305-9648. The Fax numbers for the organization where this application is assigned is:

(703) 872-9306

Taghi Arani

Patent Examiner

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